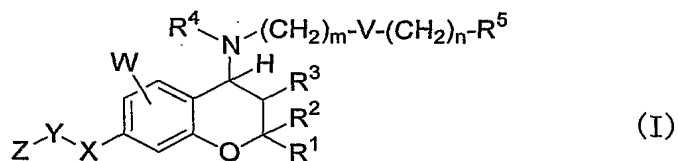


CLAIMS

1. A benzopyran compound of formula (I)



wherein

X is NR^6 wherein R^6 is hydrogen atom or C_{1-4} alkyl group;

Y is a bond, SO or SO_2 ;

Z is C_{1-4} alkyl group (wherein the C_{1-4} alkyl group may be arbitrarily substituted with 1 to 5 halogen atoms or phenyl group (wherein the phenyl group may be arbitrarily substituted with C_{1-4} alkyl group)) or phenyl group (wherein the phenyl group may be arbitrarily substituted with C_{1-4} alkyl group);

W is hydrogen atom, hydroxy group, C_{1-6} alkoxy group (wherein the C_{1-6} alkoxy group may be arbitrarily substituted with halogen atom), halogen atom, C_{1-4} alkyl group or C_{1-6} alkylsulfonylamino group;

R^1 and R^2 are independently of each other C_{1-3} alkyl group (wherein the C_{1-3} alkyl group may be arbitrarily substituted with hydroxy group, methoxy group, halogen atom or trifluoromethoxy group);

R^3 is hydrogen atom, hydroxy group or methoxy group;

m is an integer of 0 to 4;

n is an integer of 0 to 4;

V is a single bond, CR^7R^8 wherein R^7 is

- C_{1-6} alkyl group (wherein the C_{1-6} alkyl group may be arbitrarily substituted with halogen atom, hydroxy group, C_{1-6} alkoxy group (wherein the C_{1-6} alkoxy group may be arbitrarily substituted with halogen atom), C_{6-14} aryl group or C_{2-9} heteroaryl group (wherein each of the C_{6-14} aryl group or C_{2-9} heteroaryl group may be arbitrarily substituted with 1 to 3 R^{10} wherein R^{10} is halogen atom; hydroxy group; C_{1-6} alkyl group (wherein the C_{1-6} alkyl group may be arbitrarily substituted with halogen atom, hydroxy group or C_{1-6} alkoxy group (wherein the C_{1-6} alkoxy group may be arbitrarily substituted with halogen atom))); C_{1-6} alkoxy group (wherein the C_{1-6} alkoxy group may be arbitrarily substituted with halogen atom); nitro group; cyano group; formyl group; formamide group; sulfonylamino group; sulfonyl group; amino group; C_{1-6} alkylamino group; di- C_{1-6} alkylamino group; C_{1-6} alkylcarbonylamino group; C_{1-6}

alkylsulfonylamino group; aminocarbonyl group; C₁₋₆ alkylaminocarbonyl group; di-C₁₋₆ alkylaminocarbonyl group; C₁₋₆ alkylcarbonyl group; C₁₋₆ alkoxycarbonyl group; aminosulfonyl group; C₁₋₆ alkylsulfonyl group; carboxy group or C₆₋₁₄ arylcarbonyl group, and when a plurality of R¹⁰ are present, they may be identical or different from each other), C₆₋₁₄ aryl group or C₂₋₉ heteroaryl group (wherein each of the C₆₋₁₄ aryl group or C₂₋₉ heteroaryl group may be arbitrarily substituted with 1 to 3 R¹⁰ wherein R¹⁰ has the above-mentioned meaning));

- hydroxy group or

- C₁₋₆ alkoxy group (wherein the C₁₋₆ alkoxy group may be arbitrarily substituted with halogen atom), and R⁸ is

- hydrogen atom,

- C₁₋₆ alkyl group (wherein the C₁₋₆ alkyl group may be arbitrarily substituted with halogen atom, hydroxy group, C₁₋₆ alkoxy group (wherein the C₁₋₆ alkoxy group may be arbitrarily substituted with halogen atom)),

- C₆₋₁₄ aryl group or C₂₋₉ heteroaryl group (wherein each of the C₆₋₁₄ aryl group or C₂₋₉ heteroaryl group may be arbitrarily substituted with 1 to 3 R¹¹ wherein R¹¹ is halogen atom; hydroxy group; C₁₋₆ alkyl group (wherein the C₁₋₆ alkyl group may be arbitrarily substituted with halogen atom, hydroxy group or C₁₋₆ alkoxy group (wherein the C₁₋₆ alkoxy group may be arbitrarily substituted with halogen atom)));

C₁₋₆ alkoxy group (wherein the C₁₋₆ alkoxy group may be arbitrarily substituted with halogen atom); nitro group; cyano group; formyl group; formamide group;

sulfonylamino group; sulfonyl group; amino group; C₁₋₆ alkylamino group; di-C₁₋₆ alkylamino group; C₁₋₆ alkylcarbonylamino group; C₁₋₆ alkylsulfonylamino group; aminocarbonyl group; C₁₋₆ alkylaminocarbonyl group; di-C₁₋₆ alkylaminocarbonyl group; C₁₋₆ alkylcarbonyl group; C₁₋₆ alkoxycarbonyl group; aminosulfonyl group; C₁₋₆ alkylsulfonyl group; carboxy group or C₆₋₁₄ arylcarbonyl group, and when a plurality of R¹¹ are present, they may be identical or different from each other),

- hydroxy group or

- C₁₋₆ alkoxy group (wherein the C₁₋₆ alkoxy group may be arbitrarily substituted with halogen atom), or R⁷ together with R⁸ may represent O or S, or

V is NR⁹ wherein R⁹ is hydrogen or C₁₋₆ alkyl group (wherein the C₁₋₆ alkyl group may be arbitrarily substituted with halogen atom, C₁₋₆ alkoxy group (wherein the C₁₋₆ alkoxy group may be arbitrarily substituted with halogen atom), hydroxy group, C₆₋₁₄ aryl group or C₂₋₉ heteroaryl group (wherein each of the C₆₋₁₄ aryl group or C₂₋₉ heteroaryl group may be arbitrarily substituted with 1 to 3 R¹¹ wherein R¹¹ has the

above-mentioned meaning)); or O, S, SO or SO₂;

R⁴ is hydrogen or C₁₋₆ alkyl group (wherein the C₁₋₆ alkyl group may be arbitrarily substituted with halogen atom, C₁₋₆ alkoxy group (wherein the C₁₋₆ alkoxy group may be arbitrarily substituted with halogen atom), or hydroxy group); and

R⁵ is

- hydrogen atom,
- C₁₋₆ alkyl group (wherein the C₁₋₆ alkyl group may be arbitrarily substituted with halogen atom, C₁₋₆ alkoxy group (wherein the C₁₋₆ alkoxy group may be arbitrarily substituted with halogen atom), amino group, carboxy group or hydroxy group),
- C₃₋₈ cycloalkyl group or C₃₋₈ cycloalkenyl group (wherein the C₃₋₈ cycloalkyl group or C₃₋₈ cycloalkenyl group may be arbitrarily substituted with halogen atom, C₁₋₆ alkyl group (wherein the C₁₋₆ alkyl group may be arbitrarily substituted with halogen atom, C₁₋₆ alkoxy group (wherein the C₁₋₆ alkoxy group may be arbitrarily substituted with halogen atom), amino group, carboxy group or hydroxy group), C₁₋₆ alkoxy group (wherein the C₁₋₆ alkoxy group may be arbitrarily substituted with halogen atom), amino, carboxy group or hydroxy group), or
- C₆₋₁₄ aryl group or C₂₋₉ heteroaryl group (wherein each of the C₆₋₁₄ aryl group or C₂₋₉ heteroaryl group may be arbitrarily substituted with 1 to 3 R¹² wherein R¹² is halogen atom; hydroxy group; C₁₋₆ alkyl group (wherein the C₁₋₆ alkyl group may be arbitrarily substituted with halogen atom, hydroxy group or C₁₋₆ alkoxy group (wherein the C₁₋₆ alkoxy group may be arbitrarily substituted with halogen atom)); C₁₋₆ alkoxy group (wherein the C₁₋₆ alkoxy group may be arbitrarily substituted with halogen atom); nitro group; cyano group; formyl group; formamide group; sulfonylamino group; sulfonyl group; amino group; C₁₋₆ alkylamino group; di-C₁₋₆ alkylamino group; C₁₋₆ alkylcarbonylamino group; C₁₋₆ alkylsulfonylamino group; aminocarbonyl group; C₁₋₆ alkylaminocarbonyl group; di-C₁₋₆ alkylaminocarbonyl group; C₁₋₆ alkylcarbonyl group; C₁₋₆ alkoxycarbonyl group; aminosulfonyl group; C₁₋₆ alkylsulfonyl group; carboxy group, C₆₋₁₄ arylcarbonyl group, ureido group, C₁₋₆ alkylureilene group, C₆₋₁₄ aryl C₁₋₆ alkylamino group, C₁₋₆ alkoxycarbonylamino group, C₆₋₁₄ aryloxy group or C₆₋₁₄ arylcarbonylamino group, when a plurality of R¹² are present, they may be identical or different from each other).

2. The benzopyran compound according to claim 1, wherein both R¹ and R² are methyl group, R³ is hydroxy group, and V is a single bond.

3. The benzopyran compound according to claim 1, wherein both R^1 and R^2 are methyl group, R^3 is hydroxy group, and V is CR^7R^8 .
4. The benzopyran compound according to claim 1, wherein both R^1 and R^2 are methyl group, R^3 is hydroxy group, and V is NR^9 .
5. The benzopyran compound according to claim 2, wherein R^5 is C_{1-6} alkyl group, C_{3-8} cycloalkyl or C_{6-14} aryl.
6. The benzopyran compound according to claim 3, wherein R^5 is C_{1-6} alkyl group, C_{3-8} cycloalkyl or C_{6-14} aryl.
7. The benzopyran compound according to claim 4, wherein R^5 is C_{1-6} alkyl group, C_{3-8} cycloalkyl or C_{6-14} aryl.
8. The benzopyran compound according to claim 5, wherein W is hydrogen atom, hydroxy group, methoxy group, chlorine atom, bromine atom, methyl group, ethyl group or methylsulfonylamino group.
9. The benzopyran compound according to claim 6, wherein W is hydrogen atom, hydroxy group, methoxy group, chlorine atom, bromine atom, methyl group, ethyl group or methylsulfonylamino group.
10. The benzopyran compound according to claim 8, wherein R^5 is C_{1-6} alkyl group or C_{6-14} aryl, R^6 is hydrogen atom or methyl group, Y is SO_2 , and Z is C_{1-4} alkyl group.
11. The benzopyran compound according to claim 8, wherein R^5 is C_{1-6} alkyl group or C_{6-14} aryl, R^6 is hydrogen atom or methyl group, Y is a bond, and Z is C_{1-4} alkyl group.
12. A benzopyran compound which is N-((3*R*^{*}, 4*S*^{*})-3-hydroxy-6-methoxy-2,2-dimethyl-4-[(2-phenylethyl)amino]-3,4-dihydro-2H-1-benzopyran-7-yl)-methanesulfonamide.

13. A benzopyran compound which is N- $\{(3R^*, 4S^*)$ -3,6-dihydroxy-2,2-dimethyl-4-[(2-phenylethyl)amino]-3,4-dihydro-2H-1-benzopyran-7-yl} methanesulfonamide.
14. A benzopyran compound which is N- $\{(3R^*, 4S^*)$ -3-hydroxy-6-methoxy-2,2-dimethyl-4-[(2-phenylethyl)amino]-3,4-dihydro-2H-1-benzopyran-7-yl}-N-methylmethanesulfonamide.
15. A benzopyran compound which is N- $\{(3R^*, 4S^*)$ -4-[(2-cyclohexylethyl)amino]-3-hydroxy-6-methoxy-2,2-dimethyl-3,4-dihydro-2H-1-benzopyran-7-yl} methanesulfonamide.
16. A benzopyran compound which is N- $\{(3R^*, 4S^*)$ -3-hydroxy-6-methoxy-2,2-dimethyl-4-(pentylamino)-3,4-dihydro-2H-1-benzopyran-7-yl} methanesulfonamide.
17. A benzopyran compound which N- $\{(3R^*, 4S^*)$ -3-hydroxy-2,2,8-trimethyl-4-[(2-phenylethyl)amino]-3,4-dihydro-2H-1-benzopyran-7-yl} methanesulfonamide.
18. A benzopyran compound which is N- $\{(3R^*, 4S^*)$ -3-hydroxy-2,2-dimethyl-4-[(2-phenylethyl)amino]-3,4-dihydro-2H-benzopyran-7-yl} methanesulfonamide maleate.
19. A benzopyran compound which is N- $\{(3R^*, 4S^*)$ -3-hydroxy-2,2-dimethyl-4-[(2-phenylethyl)amino]-3,4-dihydro-2H-benzopyran-7-yl} ethanesulfonamide hydrochloride.
20. A benzopyran compound which is 1,1,1-trifluoro-N- $\{(3R^*, 4S^*)$ -3-hydroxy-2,2-dimethyl-4-[(2-phenylethyl)amino]-3,4-dihydro-2H-benzopyran-7-yl}-methanesulfonamide maleate.
21. A benzopyran compound which is N- $\{(3R^*, 4S^*)$ -3-hydroxy-2,2-dimethyl-4-[(2-phenylethyl)amino]-3,4-dihydro-2H-benzopyran-7-yl}-N-methylmethanesulfonamide hydrochloride.
22. A benzopyran compound which is N- $\{(3R^*, 4S^*)$ -6-bromo-3-hydroxy-2,2-dimethyl-4-[(2-phenylethyl)amino]-3,4-dihydro-2H-benzopyran-7-yl}-

methanesulfonamide.

23. A benzopyran compound which is (3*R**, 4*S**)-2,2-dimethyl-7-dimethylamino-4-[(2-phenylethyl)amino]-3-chromanol hydrochloride.
24. A benzopyran compound which is (3*R**, 4*S**)-2,2-dimethyl-7-methylamino-4-[(2-phenylethyl)amino]-3-chromanol hydrochloride.
25. A benzopyran compound which is (3*R**, 4*S**)-4-[[2-(4-fluorophenyl)ethyl]amino]-2,2-dimethyl-7-dimethylamino-3-chromanol hydrochloride.
26. A benzopyran compound which is (3*R**, 4*S**)-6-methoxy-2,2-dimethyl-7-dimethylamino-4-[(2-phenylethyl)amino]-3-chromanol.
27. A benzopyran compound which is (3*R**, 4*S**)-6-methoxy-2,2-dimethyl-7-methylamino-4-[(2-phenylethyl)amino]-3-chromanol hydrochloride.
28. A benzopyran compound which is N-[(3*R**, 4*S**)-3-hydroxy-2,2-dimethyl-4-[(2-phenylethyl)amino]-3,4-dihydro-2H-benzopyran-7-yl]-4-methylbenzenesulfonamide.
29. A benzopyran compound which is N-[(3*R**, 4*S**)-3-hydroxy-2,2-dimethyl-6-[(methylsulfonyl)amino]-4-[(2-phenylethyl)amino]-3,4-dihydro-2H-benzopyran-7-yl]-methanesulfonamide.
30. A benzopyran compound which is (3*R**, 4*S**)-2,2-dimethyl-7-methylethylamino-4-[(2-phenylethyl)amino]-3-chromanol hydrochloride.
31. A benzopyran compound which is N-[(3*R**, 4*S**)-3-hydroxy-2,2-dimethyl-4-[(2-phenylethyl)amino]-3,4-dihydro-2H-chromen-7-yl]-N-isopropylmethanesulfonamide hydrochloride.

32. A pharmaceutical characterized by comprising the benzopyran compound according to any one of claims 1 to 31 or pharmaceutically acceptable salt thereof as an active ingredient.

33. A pharmaceutical for treating arrhythmia characterized by comprising the benzopyran compound according to any one of claims 1 to 31 or pharmaceutically acceptable salt thereof as an active ingredient.